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Fabio Veroni

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NIXON & VANDERHYE, PC
901 NORTH GLEBE ROAD, 11TH FLOOR
ARLINGTON, VA 22203

EXAMINER

THOMAS, LUCY M

ART UNIT

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|--------------------------------------|--------------------------------------|--|
| Office Action Summary | Application No. 10/553,168 | Applicant(s) VERONI, FABIO | |
| | Examiner Lucy Thomas | Art Unit 2836 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 June 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☐ Claim(s) _____ is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11, 15-25 is/are rejected.
- 7) ☒ Claim(s) 12-14 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 9-11 & 17-19 are rejected under 35 U.S.C. §103(a) as being unpatentable over Fowler et al. (US 5710691). Regarding claims 1 Fowler et al. discloses a programmable control unit for a circuit breaker for protecting an electric circuit (Fig. 1) comprising: a switch 200 to be arranged in said electrical circuit; a receiver for receiving and storing programmable current threshold (Front Panel 150 receives and send the information to 130 to store and/or process the information); a microprocessor to with a programmable threshold (130, note that microprocessors have memory to perform the logic operations/comparisons and this one in particular outputs a triggering signal, which will result in an integrated triggering device, as a result of the logic operations/comparisons, see Abstract), a current detector for detecting a current level (250) and causing the switch to break the circuit if the flowing current in the circuit exceeds a predetermined rated current for more than a specified duration (Col. 1 lines 27-37).

Fowler does not specifically disclose a second current detector for causing the switch to break the electrical circuit if current flowing in the electrical circuit exceeds a predetermined rated current for more than a specified duration, which is well known in

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the art (as Applicant also acknowledges, See Specification, Page 13). It would be obvious to one of ordinary skill in the art at the time the invention was made to use Fowler's programmable control circuit in combination with circuit breakers already known in the art, to retain the processor independent or mechanical safety features of the known art, in addition to the digital or processor controlled safety features, to provide redundant protection in case of processor or logic failure.

Regarding claims 9-11 Fowler et al. further teaches a programmable control unit that protects against overcurrents (Abstract & Fig. 2), the specified duration can be programmed to depend on the detected level of current in the electric circuit (Abstract), microprocessor have memory to perform logic operations/comparisons.

Regarding claims 17-19 Fowler et al. further teaches receiving commands and operating the switch and communicating devices of a network thru a media cable (Co1.1 lines 16-26 & Fig. 4, note that the electrical connection between button and dial with the circuitry is accomplished thru an electrical conductor or cable).

Claims 2, 4 & 6 are rejected under 35 U.S.C. §103(a) as being unpatentable over Fowler et al. (US 5710691) in view of Larson (US 5966281).

Regarding claim 2 Fowler et al. discloses the circuit of claim 1 but does not specifically disclose a second current detector having a thermal current level detection element and causing the switch to break if the thermal current level detected exceeds a temperature threshold.

Larson et al. teaches a circuit breaker with plural detectors including a thermal current level detector that breaks the circuit when a threshold is exceeded (Col. 3 line 53 to Col. 4 line 9 & Fig. element 26).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the circuit of Fowler et al. with the circuit breaker with thermal sensing unit of Larson because it provides a thermal protection.

Regarding claim 4 Larson et al teaches the plural current detectors being a combination of thermal and electromagnetic current level detections (Fig.).

Regarding claim 6 Fowler et al. (US 5369542) in view of Larson discloses the claimed invention except for that the triggering device, the second current detector and the switch are integrated into a single unit. It would have been obvious to one having ordinary skill in the art at the time the invention was made to integrate the three elements in one unit, since it has been held that forming in one piece an article which has formerly been formed in two pieces and put together involves only routine skill in the art. Howard v. Detroit Stove Works, 150 U.S. 164 (1893).

Claims 3 is rejected under 35 U.S.C. §103(a) as being unpatentable over Fowler et al. (US 5710691) in view of Leone et al. (US 5369542). Regarding claim 3 Fowler et al. further discloses the circuit of claim 1 but does not specifically disclose a second current detector having an electromagnetic current level detection element including a coil and causing the switch to break if a magnetic force generated by the coil exceeds a threshold. Leone et al. teaches a circuit breaker with two detection coils (Abstract & Fig. 1) It would have been obvious to one of ordinary skill in the art at the time the invention

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was made to combine the circuit of Fowler et al. with the circuit breaker of Leone et al. because provides protection to the circuit at two different current levels and this redundancy improves the safety of the device.

Claims 5 is rejected under 35 U.S.C. §103(a) as being unpatentable over Fowler et al. (US 5710691) in view of Larson (US 5966281) and Yamamoto Hiroshi (JP 07-312151). Regarding claim 5 Fowler et al. discloses the circuit of claim. 1 but does not disclose a second current detector is configured to cause the switch to break if the current exceeds a predetermined value and a solid state interruption element in series with the switch.

Larson et al. teaches a circuit breaker with plural detectors including a thermal current level detector that breaks the circuit when a threshold is exceeded (Col. 3 line53 to Col. 4 line 9 & Fig. element 26).

Yamamoto Hiroshi teaches a circuit breaker with a solid state interruption element in series with the switch (Fig. 1 elements 2U, 8U). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the Fowler et al. with the circuit breaker with thermal sensing unit of Larson because it provides a thermal protection and further with the teachings of Yamamoto Hiroshi because interrupts unexpected current in less than 1 cycle once detected by current-limiting reactor, does not need to rise short circuit current interruption capacitance of circuit breaker in receiving point due to short circuit impedance of unexpected current (Abstract).

Claim 7 is rejected under 35 U.S.C. §103(a) as being unpatentable over Fowler et al. (US 5710691) in view of Covi et al. (US 6515840). Regarding claim 7 Fowler et al.

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discloses the circuit of claim 1 but does not disclose wherein the first current detector comprises a means to convert the electrical current flowing in the circuit into a voltage and means for detecting the voltage and outputting a corresponding current level detection signal.

Covi et al. teaches a circuit breaker with a sensing resistor and a comparator (Fig. 3 elements RS, 20).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the Fowler et al. circuit with the teachings of Covi et al. because operational amplifiers provide accurate comparison, amplify the signal drive other elements and consume low power.

Claims 8 is rejected under 35 U.S.C. §103(a) as being unpatentable over Fowler et al. (US 5710691), Covi et al. (US 6515840) and W.F. Skeats (US 2310126). Regarding claim 8 Fowler et al. in view of Covi et al. discloses the circuit of claim 1 but does not disclose wherein the means for converting an electrical current into a voltage comprises a shunt impedance or an arrangement of coils magnetically coupled to constitute a transformer or a hall effect device or a magnetoresistor or a Rogosky coil.

W.F. Skeats teaches a circuit breaker with shunt impedance (Fig. 2 element 12). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the Fowler et al. in view of Covi et al. circuit with the teachings of W.F. Skeats because it is desirable to have current and voltage measurement records in precise and accurate time relation with respect to each other in other words without distortion.

Claim 15 is rejected under 35 U.S.C. §103(a) as being unpatentable over Fowler et al. (US 5710691) in view of Sato Eietsu et al. (FR 2751784). Regarding claim 15 Fowler et al. discloses the circuit of claim 9 but does not specifically disclose wherein the processing means is adapted to provide a plurality of functional relations each specifying for a plurality of current levels a respective associated duration; and select one of the functional relations in accordance with the current threshold command.

Sato Eietsu et al. teaches a switching adjustment method for circuit breakers wherein the processing means is adapted to provide a plurality of functional relations each specifying for a plurality of current levels a respective associated duration; and select one of the functional relations in accordance with the current threshold command (Fig. 7). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the Fowler et al. circuit with the teachings of Sato Eietsu et al. because it removes the possibility of an operator wrongly adjusting the circuit breaker.

Claim 16 is rejected under 35 U.S.C. §103(a) as being unpatentable over Fowler et al. (US 5710691), Sato Eietsu et al. (FR 2751784) and Hartmann et al. (US 5359711). Regarding claim 16 Fowler et al. in view of Sato Eietsu et al. discloses the circuit of claim 15 but does not specifically discloses the use of tables.

Hartmann et al. teaches a system with circuit breakers that uses tables (Col. 2 line 56 to Col. 3 line 5). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the Fowler et al. in view of Sato Eietsu et al. circuit with the teachings of Hartmann et al. because provides easy customization.

Claim 20 is rejected under 35 U.S.C. §103(a) as being unpatentable over Fowler et al. (US 5710691) in view of B.B. Purdy et al. (US 2839092) and Baker (US Patent Application Publication 2002/0135237). Regarding claim 20 Fowler et al. discloses the circuit of claim 1 and a switch and a coil for electro magnetically driving a movable member but does not disclose wherein the first means comprises an auxiliary switch connected in series with the coil; the switch and the auxiliary switch being mechanically coupled with the movable member for actuation thereby; a displacement required for opening the auxiliary switch being larger than a displacement required for opening the switch.

B.B. Purdy et al. teaches a circuit that uses a switch with multiple poles and a single throw wherein an auxiliary switch connected in series with the coil (Fig. 6 element 43). Baker teaches a switch with multiple poles and single throw wherein the displacement of the contacts is different (Fig. 3). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the Fowler et al. circuit the teachings of B.B. Purdy et al. because it allows to drive multiple switches with only one coil and further in view of Baker because this prolongs the live of the switching activated devices.

Claims 21-22 are rejected under 35 U.S.C. §103(a) as being unpatentable over Fowler et al. (US 5710691) in view of Gilker (US 4514685). Regarding claims 21 & 22 Fowler et al. discloses the circuit of claim 1 but does not disclose that is in an electricity meter for measuring the amount of energy supplied to an electricity consumer through an electric circuit. Gilker teaches an electricity meter (Abstract). It would have been obvious to one

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of ordinary skill in the art at the time the invention was made to combine the Fowler et al. circuit with the teachings of Gilker because it generates accurate signals of the measurements (Col. 1 line 65 to Col. 2 line2).

Gilker further teaches a circuit for obtaining a measure for the instantaneous active and reactive power levels supplied to the electric circuit; and integrating the obtained instantaneous power levels over time in order to obtain the active and reactive energy supplied to the electrical circuit (Fig. 4).

Claims 23-26 are rejected under 35 U.S.C. §103(a) as being unpatentable over Fowler et al. (US 5710691)in view of Berkman et al. (US 7064654). Regarding claim 23 Fowler et al. discloses the circuit of claim 1 but does not disclose the use of it in an electricity distribution network, comprising at least one electrical power plant for generating electrical power to be distributed to a plurality of consumers; an electrical power distribution network for distributing the power generated by said at least one power plant to said consumers.

Berkman et al. teaches an electric network to provide electrical power to a plurality of consumers (Abstract). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the Fowler et al. circuit with the teachings of Berkman et al. because the combination allows an electricity distribution network to measure the consumption of each customer.

Regarding claim 24 Fowler et al. disclose command signals to operate the breaker (Fig. 1 signals between elements130 & 200).

Regarding claim 25 Berkman et al. further teaches a network with high, medium and low voltages and substations (Fig. 2) and communications thru a twisted pair (Fig. 6c) and Bolda et al. teaches command signals (Fig. 2 elements 83a-d).

Regarding claim 26 Berkman et al. further teaches the communications in the electric network being wireless (Fig. 16).

Allowable Subject Matter

Claims 12-14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

3. Applicant's arguments filed 6/11/2008 have been fully considered.
4. Regarding Applicant's arguments toward Fowler reference: The Applicant states that Fowler does not relate to an electric circuit breaker but rather to a programmable control unit for a household power socket. It is true that Fowler teaches a programmable control unit for a circuit breaker which breaks electrical circuit between AC input 100 and AC output 220 using switch 200, and therefore relate to an electric circuit breaker.

The Applicant argues that Fowler lacks a receiver for receiving a programmable current threshold. Examiner respectfully disagrees. Fowler's element 150, which is a front panel, meets the limitation of a receiver for receiving programmable current threshold.

Regarding argues that there is no mechanism or incentive in Fowler to provide a second detector a second detector that cause the relay switch to open the electric circuit. Examiner notes that the second detector or mechanism is well known in the art, and the motivation for having safety mechanisms independent of each other is also known, to have redundant protection. If the second detector is for mechanical control, it provides additional redundant protection to guard against logic or processor failure.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US 5,943,204 to Jones et al.; US 6,361,205 to Anderson; US 5,854,731 to Thomas.

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lucy Thomas whose telephone number is 571-272-

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6002. The examiner can normally be reached on Monday - Friday 8:00 AM - 4:30 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Sherry can be reached on 571-272-2084. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Michael J Sherry/
Supervisory Patent Examiner, Art Unit 2836

/L. T./
Examiner, Art Unit 2836
October 01, 2008